VADDIO™ AV BRIDGE

USB/IP Streaming Appliance

Part Numbers:
999-8210-000: AV Bridge (North America)
999-8210-001: AV Bridge (International)

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Inside Front Cover - Blank

Table of Contents

Overview: 4
Save These Instructions: 4
Unpacking: 5
Anatomy of the AV Bridge 5
Image: Front Panel with Feature Callouts 5
Image: Rear Panel Connector and Features 6
First Time Set-up with the AV Bridge: 6
Diagram: The simple way to look at AV Bridge 7
Diagram: A small Lecture Capture System 7
Installation Instructions: 8
Diagram: Connecting the AV Bridge 8
Step by Step Installation Instructions: 8
Compatibility 9
Table: Supported UVC Resolutions 9
System Configuration and Programming: 10
Web Pages Tour: 11
Screen Shot: Login 11
Screen Shot: A/V Configuration Web Page 12
Screen Shot: AV Configuration 12
Screen Shot: Streaming 13
Screen Shot: Room Labels 14
Screen Shot: Network Configuration - DHCP 14
Screen Shot: Network Configuration - Static IP 15
Screen Shot: Security 15
Screen Shot: Diagnostics 16
Screen Shot: System Menu 16
Screen Shot: System Confirmation Messages 17
Screen Shot: Firmware Update in Progress 17
Screen Shot: Help Menu 18
Logout: 18
Updating AV Bridge Firmware 19
Restoring Factory Defaults 20
Warranty Information 21
AV Bridge Compliance and CE Declaration of Conformity 22
General Specifications 23
Appendix 1- Connectors Pin Outs 23
Appendix 2: Vaddio Serial Command API 24
Command List: 25
Release Notes - AV Bridge 2.0.0 32
New Features & Functions 32
Fixed Issues 32
Known Issues 32
Interoperability Testing & Findings 32
Table: AV Bridge UC Client Interoperability Testing 32
Table: AV Bridge IP Streaming Interoperability Testing 33
Previous Release Notes(1.2.0): 34
Interoperability Testing & Findings: 35

Overview:

Vaddio's AV Bridge is a room based HD Media Streaming appliance for USB and IP streaming of content originating from traditional audio and video equipment. The AV Bridge is designed for pro AV applications offering a flexible audio and video interface that's controllable from an embedded web server or front panel menu. A/V Bridge accepts a multitude of video input resolutions from standard definition (480i/NTSC and 576i/PAL) up to HD 1080p/60 in HDMI and YPbPr, including wide-screen VESA type resolutions (RGBHV) and incorporates stereo audio inputs facilitating connection to professional AV equipment.

AV Bridge shown with provided Rack Ears Attached

The USB streaming functions using MJPEG (Motion JPEG) and standard UVC (USB Video Class) with UAC (USB Audio Class) drivers eliminating the need for installation of custom software drivers on the Host PC. The IP streaming uses RTSP and HLS (Apple's variant on HTTP streaming) and encodes H.264 video with AAC Audio. The Ethernet port also provides access to internal web pages for control, set-up and updating the AV Bridge.

Use the AV Bridge in lecture/capture recording applications to "bridge" video and audio signals into a PC for storage, editing, rebroadcasting meetings or worship services and retrofit existing meeting rooms by simply plugging a USB cable into a Host PC or connecting to an IP network.

The AV Bridge supports high definition encoding of audio and video sources, producing superior quality results at the fraction of the cost of other products. The AV Bridge seamlessly integrates with Vaddio's HD cameras, presentation systems, video mixing consoles and audio products. The AV Bridge is an unsurpassable value because of its ease of use and plug and play functionality.

Intended Use:

Before operating the device, please read the entire manual thoroughly. The system was designed, built and tested for use indoors, and with the provided power supply and cabling. The use of a power supply other than the one provided or outdoor operation has not been tested and could damage the device and/or create a potentially unsafe operating condition.

Important Safeguards:

Read and understand all instructions before using. Do not operate any device if it has been dropped or damaged. In this case, a Vaddio technician must examine the product before operating. To reduce the risk of electric shock, do not immerse in water or other liquids and avoid extremely humid conditions. Do not connect Power over Ethernet (PoE) cables directly to the RJ-45 ports on the device as damage may result.

Use only the power supply provided with the system. Use of any unauthorized power supply will void any and all warranties.

Please do not use "pass-thru" type RJ-45 connectors. These pass-thru type connectors do not work well for professional installations and can be the cause of intermittent connections which can result in the RS-232 control line failing and locking up. For best results please use standard RJ-45 connectors and test all cables for proper pin-outs prior to use.

Save These Instructions:

The information contained in this manual will help you install and operate your product. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on the Vaddio website. These documents can be downloaded from www.vaddio.com free of charge.

Unpacking:

Carefully remove the device and all of the parts from the packaging. Unpack and identify the following parts:

AV Bridge shown with provided Rack Ears Attached

For P/N 999-8510-000 AV Bridge for North America
One (1) AV Bridge HD Audio/Video Encoder
One (1) Pair of Rack Ears
One (1) 18 VDC, 2.75 Amp Switching Power Supply with AC Power Cord for North America
One (1) 6' (1.83m) USB 2.0 Cable, Type-A Male to Type-B Male (black)
One (1) Set of four rubber feet for bottom of enclosure (if not racked)
One (1) Install Guide and User Manual

For P/N 999-8510-000 AV Bridge for International
One (1) AV Bridge HD Audio/Video Encoder
One (1) Pair of Rack Ears
One (1) 18 VDC, 2.75 Amp Switching Power Supply
One (1) Euro Power Cord
One (1) UK Power Cord
One (1) 6' (1.83m) USB 2.0 Cable, Type-A Male to Type-B Male (black)
One (1) Set of four rubber feet for bottom of enclosure (if not racked)
One (1) Install Guide and User Manual

Anatomy of the AV Bridge

Image: Front Panel with Feature Callouts

AV Bridge shown without Rack Ears Attached

1) **Video Input Detect:** Blue LED indicator will illuminate validating that an active video input source has been detected by AV Bridge.

2) **LCD Display:** LCD display for menu system - displays configuration information.

3) **Menu Navigation Controls:** Rotary navigation knob to access menu items and information on LCD display. Also includes Selection and Cancel buttons for user interface of system menu.

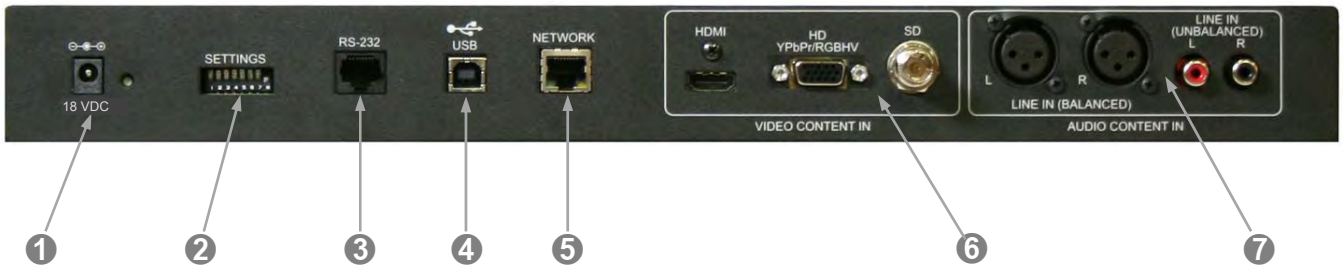
4) **Mute Controls:** Video mute button stops streaming video to USB and injects color bar image. Audio mute button stops audio from being sent on USB record channel.

5) **Audio Level Controls**: Rotary encoder knob to adjust audio input level being sent to USB record channel. Functions as the master volume control for both left and right input channels. Volume increases by rotating clockwise and decreases by rotating counterclockwise.

6) **Power/Reset Button:** System reset for the A/V Bridge.

7) **Input LED Indicators:** Depicts the current video (HDMI, HD, or SD) and audio input selection and signal characteristics - Unbalanced (High-Z) or Balanced (Low-Z).

Image: Rear Panel Connector and Features



1) **Power Connector**: 5.5mm OD x 2.5mm ID, center positive coaxial connector for supplying power to the device. Use with provided desktop 18 VDC, 2.75 Amp power supply.

2) **DIP Switches:** Used to reset device to factory defaults. Setting all DIP switches to the off-position will reset the unit to factory defaults on the next power cycle. User will lose all programmed configurations on the factory default operation.

3) **RS-232:** RS-232 communication port on an RJ-45 connector supporting Vaddio's serial command protocol. Used for interfacing with AMX/Crestron control systems.

4) **USB Port:** USB Type B connector for interface to the Host PC. Emulates a Webcam and an audio record device.

5) **Network:** 10/100 Ethernet with embedded web server for configuration and management of the AV bridge. This port will stream H.264 and AAC audio.

6) **Video Inputs:** Video inputs supporting HDMI, HD or SD connections. The HD connection supports either YPbPr or select wide screen RGBHV resolutions on the DE-15 connector. Video sources can be switched live during a USB streaming session.

7) **Audio Inputs**: Stereo balanced +4dBu audio on XLR connectors and stereo unbalanced -10dBV on RCA connectors. The audio inputs are line level and user selectable between balanced or unbalanced.

First Time Set-up with the AV Bridge:

The AV Bridge is a complex high definition Audio/Video encoder used as a USB or IP streaming appliance that provides a Plug & Play type interface (or bridge) between traditional A/V room equipment and a Host PC. The AV Bridge facilitates the use of PC-Based lecture/capture, recording, editing, distribution or Unified Communications (UC) software within group meeting spaces.

It is important to note that the audio and video can work together as inputs to the AV Bridge or can be used separately depending on the requirements of the installation.

The AV Bridge is easy and fun to operate, even the part time volunteer's at the local House of Worship will have no problem understanding how the AV Bridge works and how to set it up. The applications below depict common room applications that can be supported with the AV Bridge.

Diagram: The simple way to look at AV Bridge

The AV Bridge "bridges" the A/V signals into the PC for applications like lecture capture, storage for later playback, editing, distribution and other programs that can manipulate the content that the AV Bridge provides.

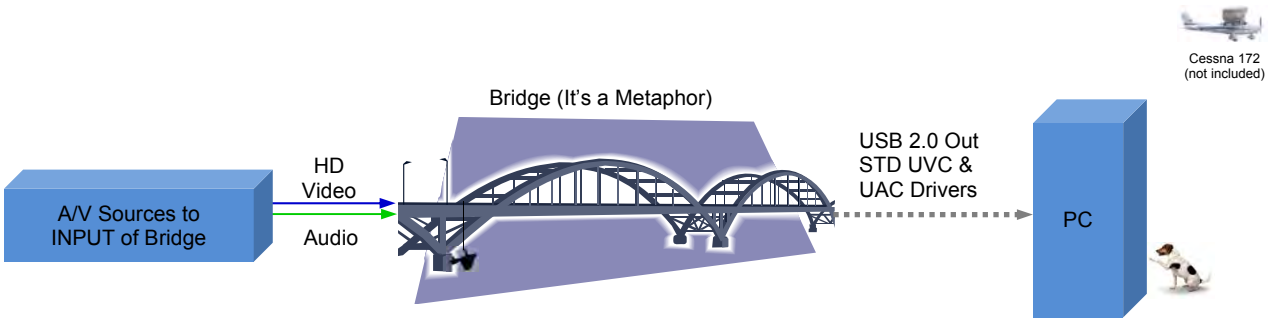
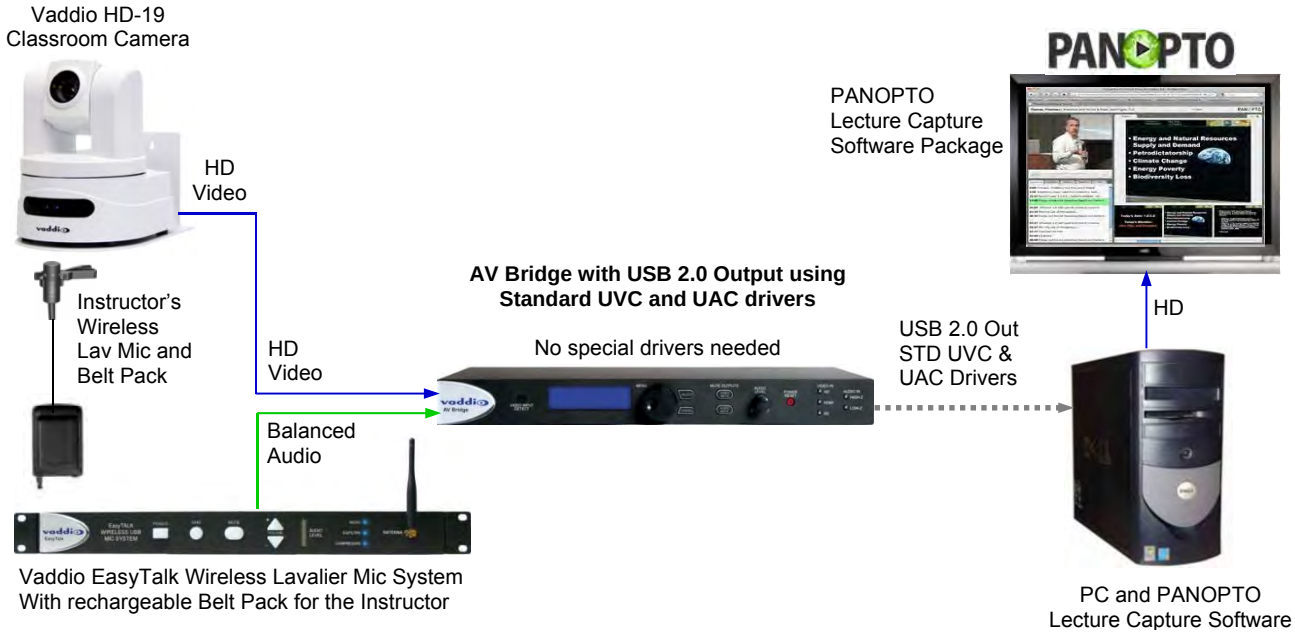


Diagram: A small Lecture Capture System

This system uses an HD-19 PTZ camera, EasyTalk™ Wireless Lav System, the AV Bridge to encode the A/V signals to USB 2.0 for use with the User's PC and Lecture Capture software.



Installation Instructions

To install the AV Bridge, follow the steps below to attach various pieces of equipment.

Diagram: Connecting the AV Bridge

Step by Step Installation Instructions:

Step 1: Plug in the 18VDC, 2.75 Amp power supply included with the AV Bridge package. The front panel LCD display will illuminate blue when the power is applied. The menu is now active and ready for configuration.

Step 2: Connect the Video Content Source(s) to the AV Bridge for USB 2.0 Streaming. More than one source can be attached and selected from the front panel or web page menu. In this case a ProductionVIEW HD with HD-22 Cameras is connected to the HD-YPbPr input.

Step 3: Connect the Audio Content Source(s) to the AV Bridge. In this case, a mixer and really good mics are connected using the balanced audio inputs.

Step 4: Connect the Host PC to the AV Bridge with the provided USB 2.0 Type-A Male to Type-B Male cable.

-OR-

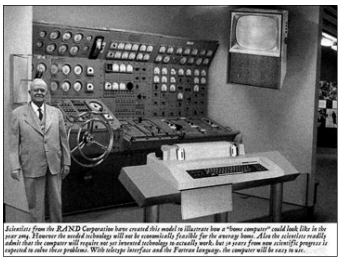
Step 5: For IP streaming and control, connect the AV Bridge to the LAN which will allow set-up, configuration and control of the AV Bridge via the internal web pages in AV Bridge from any of the approved browsers.

Step 6: From the front panel Menu System (Large Knob, Select and Cancel button), in this example, select the balanced audio input, and select HD-YPbPr video input that are to be streamed.

Note: The AV Bridge will use DHCP (by default) to obtain an IP address when connected to the LAN. The IP address will be viewable on the front panel menu. In absence of a DHCP server, the AV Bridge will default to a Static IP address which is 169.254.1.1

Compatibility

The AV-Bridge will work with the following web browsers, soft codecs, computer operating systems and media players:



Compatibility: Web Browsers:

1) Internet Explorer (IE 8 and above)
2) Safari (Rev 4 and 5)
3) Safari/iOS (Rev 4 and 5)
4) Chrome (the latest and current release - auto updating)
5) Firefox (the latest and current release - auto updating)

Soft Clients Compatibility: AV Bridge Release 2.0.x is compatible with the following soft codecs or applications, in no particular order (see Release notes for versions tested)**:**

1)	Skype	Win 7 & Mac OS X (10.7)
2)	Web Ex (WBS 28.7 and up)	Win 7 & Mac OS X
3)	Microsoft Lync	Win7
4)	Cisco Jabber	Win 7 & Mac OS X
5)	Vidyo Desktop	Win 7 & Mac OS X
6)	Google Plus	Win 7
7)	Adobe Connect 8	Win 7 & Mac OS X
8)	LifeSize ClearSea	Win 7
9)	GoToMeeting (Citrix)	Win 7 & Mac OS X
10)	Polycom M100	Win7
11)	Panaopto (lecture capture)	Win 7

Compatibility: Media Players:

The UVC with MJPEG and IP with H.264 video are compatible with the industry leading PC media players.

- Quick-Time 10.2
- VLC Media Player 2.0.4
- Real Player 16.0

Compatibility: Operating Systems

- Apple OS X (10.7 and above)
- Windows XP w/Service Pack 3 with known issues and errata
- Windows 7
- Linux

Evolving Compatibilities:

As more UC soft-client and lecture capture programs are released and gain popularity, Vaddio will provide a continuing research and development effort to ensure the compatibility with other manufacturer's products.

USB 2.0

The USB 2.0 UVC (Universal Video Class) video driver resolution table is an internal list of resolutions available for the Host PC and the AV Bridge to negotiate and use for any specific application. Typically, the highest resolution possible between both the PC and AV Bridge is used. However, not all OS and application combinations are typical. Some applications are assigned to a lower value, or the lowest resolution to purposely minimize the bandwidth requirement. In order to avoid selection of the smallest resolution possible, the resolutions of 160 x 120 and 160 x 90 were removed due to the selection of the lowest resolution by some UC Clients and because it looked sort of wicked awful (in some respects).

Table: Supported UVC Resolutions

Format	Resolution	Frame Rate	Aspect Ratio
MJPEG	1280 x 720	15/30	16:9
	960 x 544	15/30	16:9
	704 x 576	15/30	4:3
	640 x 480	15/30	4:3
	640 x 360	15/30	16:9
	424 x 240	15/30	4:3
	352 x 240	15/30	4:3
	320 x 240	15/30	4:3
	320 x 180	15/30	16:9

System Configuration and Programming:

Front Panel Menu
The front panel menu system allows some basic configuration of the AV Bridge and serves to display the important system parameters and settings. The menu tree is depicted below:

> Start Page: Initializing and Audio Ladder Appear
> Main Menu

- > Audio Inputs (Selectable from front panel)
  - > Balanced (Low Z)
  - > Unbalanced (High Z)
- > Video Inputs (Selectable from front panel if connected to video source only)
  - > Auto
  - > HD YPbPr
  - > HD RGBHV
  - > HDMI
  - >SD
- > Streaming (Streaming type is not selectable from front panel)
  - > USB Streaming (Shown if set to USB Streaming is selected using the internal web pages)
  - > IP Streaming (Shown if set to IP Streaming is selected using the internal web pages)
    - Resolution (i.e. 720p)
    - Quality (i.e. High Quality, Standard, Low bandwidth)
- >Network Configuration (read only)
  - >Host Name
- > Network Settings (read only)
  - > Mac Address:
  - > IP Address:
  - > Subnet Mask:
  - > IP Gateway:
  - >Type: DHCP
- > Version
  - > 1.2.0

Selecting Audio & Video Input Sources:

Video Input Selection: This allows the user to select between Auto-Detection, HDMI, HD, or SD video inputs. These selections correspond to the connectors on the back panel of the AV Bridge. The HD connector (DE-15) will support signal formats of up to 1080p/60 on either YPbPr or RGBHV inputs. The HDMI connector only accepts HDMI and DVI signals up to 1080p/60. The SD signals are 480i/NTSC and 576i/PAL.

Please see the **Video Inputs & Supported Video Resolutions** section in the General Specifications

Audio Input Selection:
The user has the ability to select between the balanced stereo audio input and an unbalanced stereo input.

Network Settings:
The Network settings is a “read only” message representing the current IP addresses defined for the AV Bridge by the webpages. Properties displayed include:

- Mac Address:
- IP Address:
- Subnet Mask:
- IP Gateway:
- Net Type: DHCP

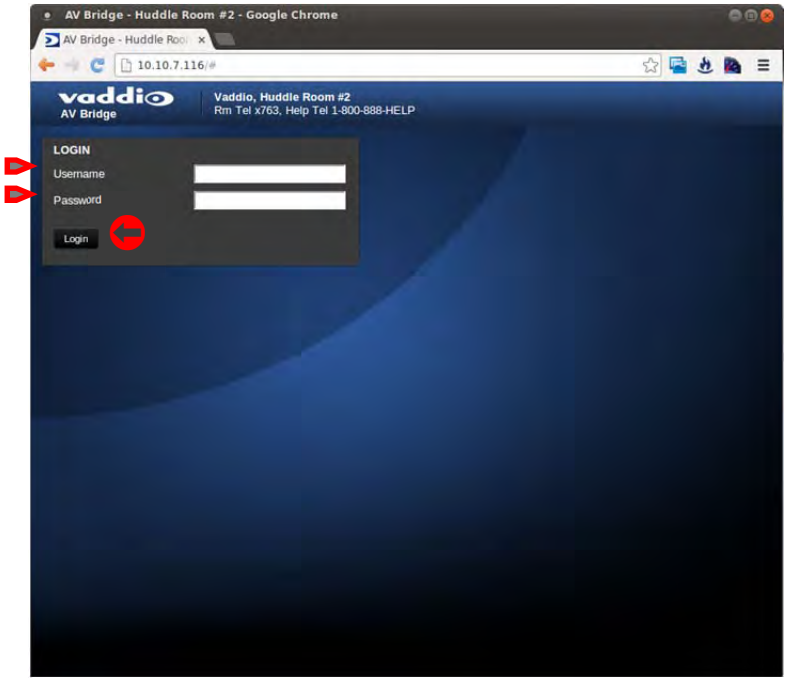
Hotkey Buttons and Indicators:
A number of common user controls have been included on the front panel for quick access by the user during a streaming session. Dedicated controls and indicators include:

- **Video Mute**:
  Stops the video input source from being sent to the Host PC and replaces with a color bar image. The Video Mute button will be backlit Red when in mute state.
- **Audio Mute:** This button mutes the input audio source being sent to the Host PC. The Audio Mute button will be backlit in red when in mute state.
- **Audio Level:** A rotary control with 10 steps (but goes to 11) allows the user to adjust the audio input level being sent to the Host PC. A visual volume level is presented on the LCD to provide feedback of the current audio level. (Note: This level is not the same as the PC’s record channel volume controls.) The audio ladder will show a relative volume level as it is adjusted however, after it shows that level for a few seconds it will act as a VU meter.
- **Video Input LED:**
  A visual LED indicator represents the current video source being sent to the Host PC. The selected source will be indicated in Blue.
- **Audio Input LED:** A visual indication of current audio input source being sent to the Host PC. Selected source will be blue.

Web Pages Tour:

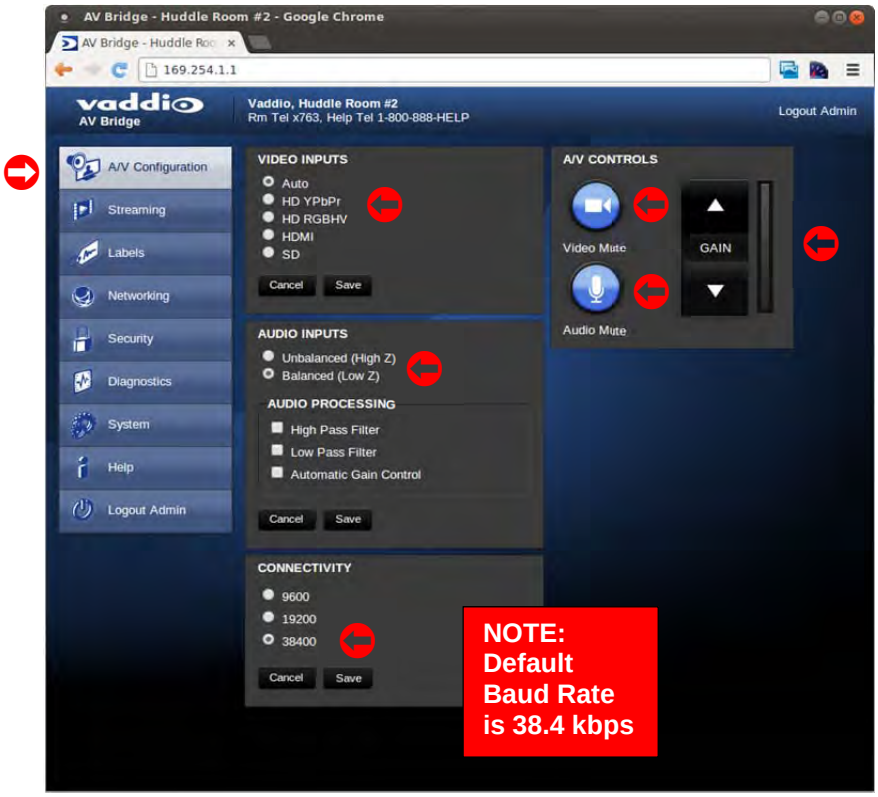
Screen Shot: Login

The AV Bridge web server is intended as an administrator’s management tool and requires authentication for access. The user account name is admin and the default password is password, which can be modified after initial login to the system.



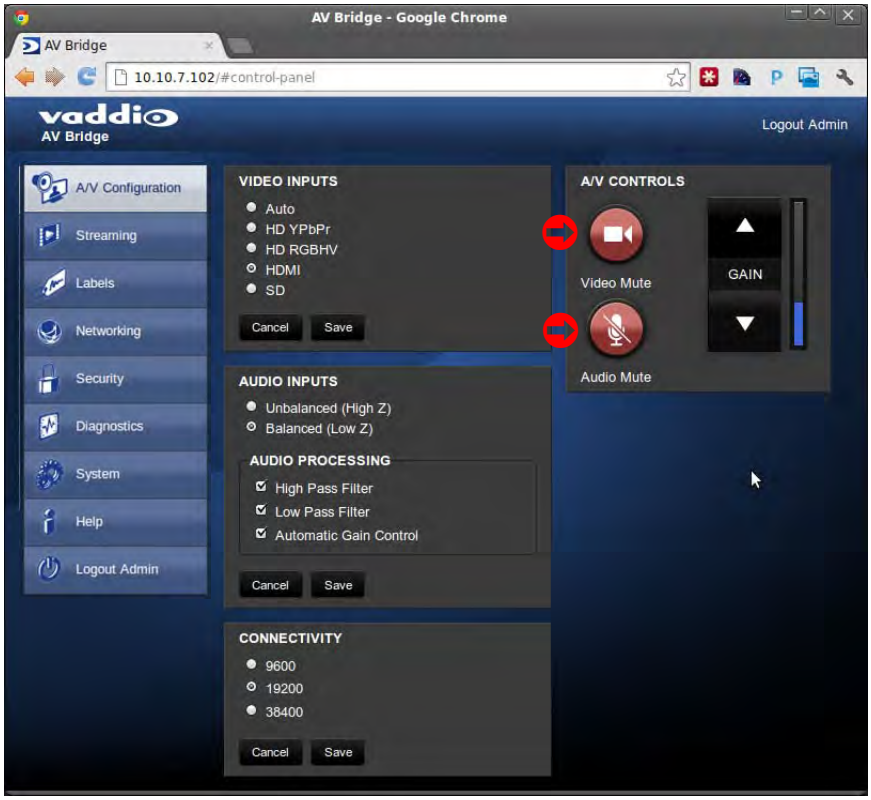
Screen Shot: A/V Configuration Web Page

Choose video input, audio Input and connectivity speed (baud rate is defaulted at 38400). Video mute and audio mute can be selected and finally the gain control of the audio is available as well.



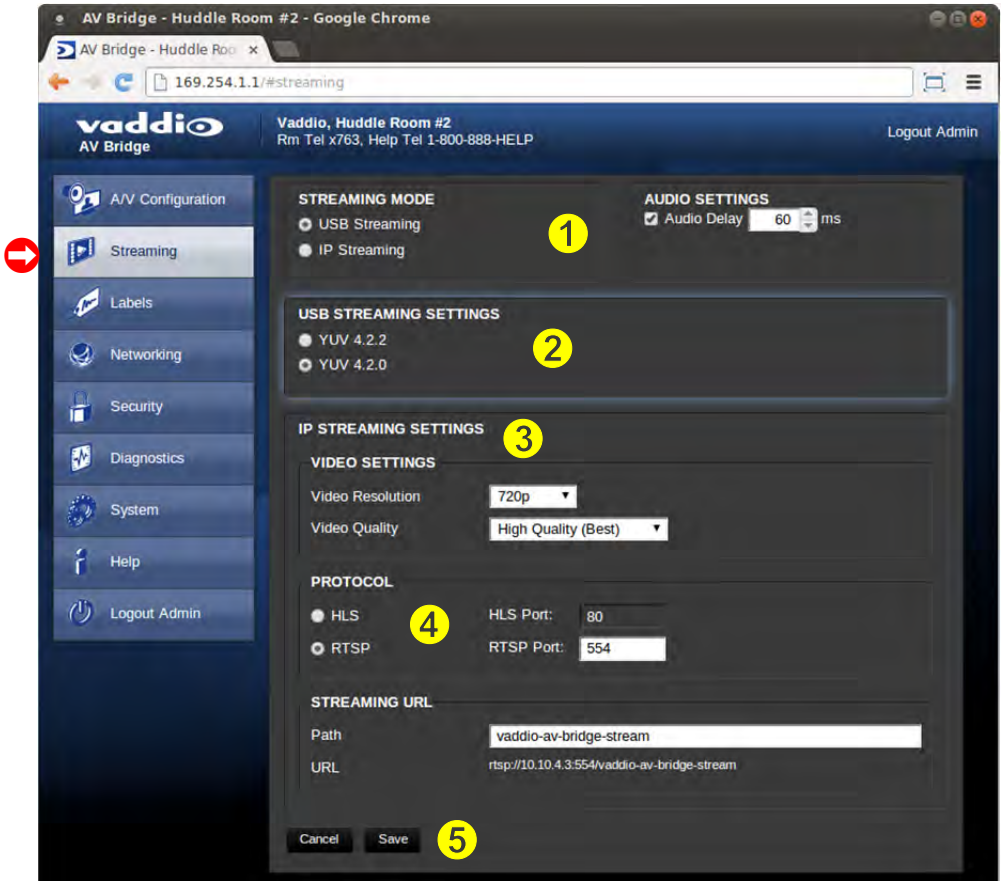
Screen Shot: AV Configuration

When the audio and video is muted the A/V Configuration page, the control icons will turn red, click on the buttons to unmute the audio or video.



Screen Shot: Streaming

The Streaming Page allows an administrator to set up the type of streaming, color depth, video speed and quality, protocol and path.



The Streaming Menu:

1) The Streaming mode is set for either USB 2.0 streaming (MJPEG) or IP streaming (H.264); however the AV Bridge can't do both at the same time. It can stream USB and accept IP control, or it can IP stream with IP control. Choose the streaming mode here. Frequently the Audio needs to be delayed in order for the video and audio to arrive concurrently. The audio delay is like the lip sync control on a BD player.

2) USB Streaming Settings allows the user to reduce the color depth to 4:2:0, which is used with the older/cheaper webcams and applications, where image quality is not as critical. The 4:2:2 color is used by many applications that take advantage of the video performance where the colors are more vivid and precise.

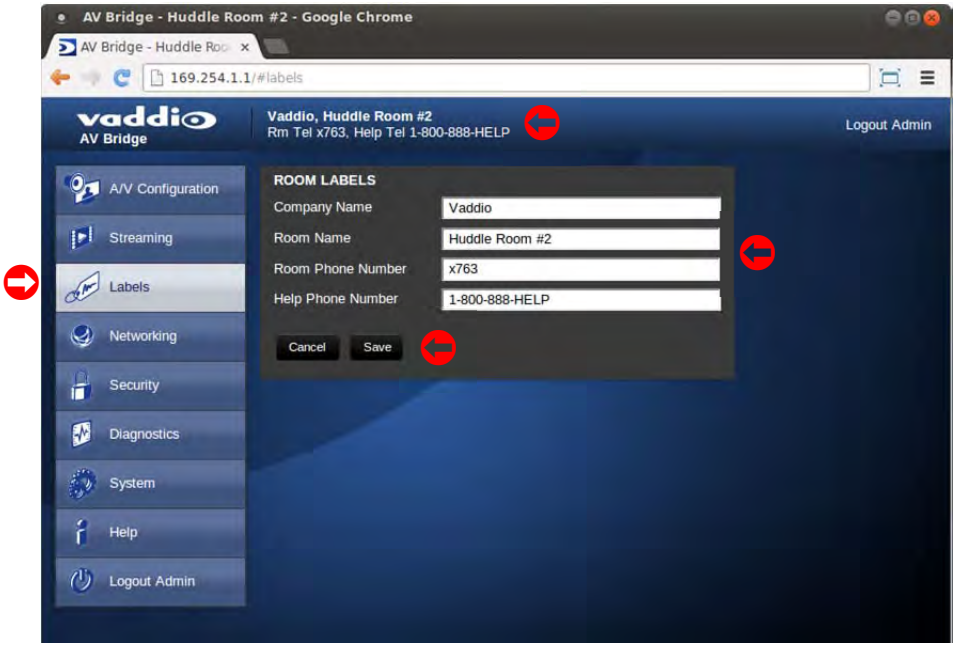
3) The IP Streaming Settings allow the selection of the target performance for the IP Streaming. AV Bridge is set up for a variable bit rate, which is much simpler to use. The user can select the resolution and the quality, such as High Quality (Best), Standard Quality (Better) and Low Bandwidth (Good). Every effort to eliminate bad combinations with the 5 or 6 parameters that make up the image size, quality, rate etc… has been made, so you can't pick 1080p at a bit rate of 128Kbps, which would look totally wicked awful - and probably wouldn't work anyway.

4) The IP Streaming Protocol also allows the admin to choose the streaming type and the port number for RTSP. The HLS port is always on 80. The supported protocols are RTSP and HLS (Apple's HTTP Live Streaming). RTSP is best for live applications, where HLS serves the Apple iOS devices and is better for playback due to the amount of buffering the HLS has built-in. The Streaming URL (below) auto populates and that path can be changed.

5) When finished setting up the streaming parameters, click on save to put the changes into effect or cancel to……cancel it.

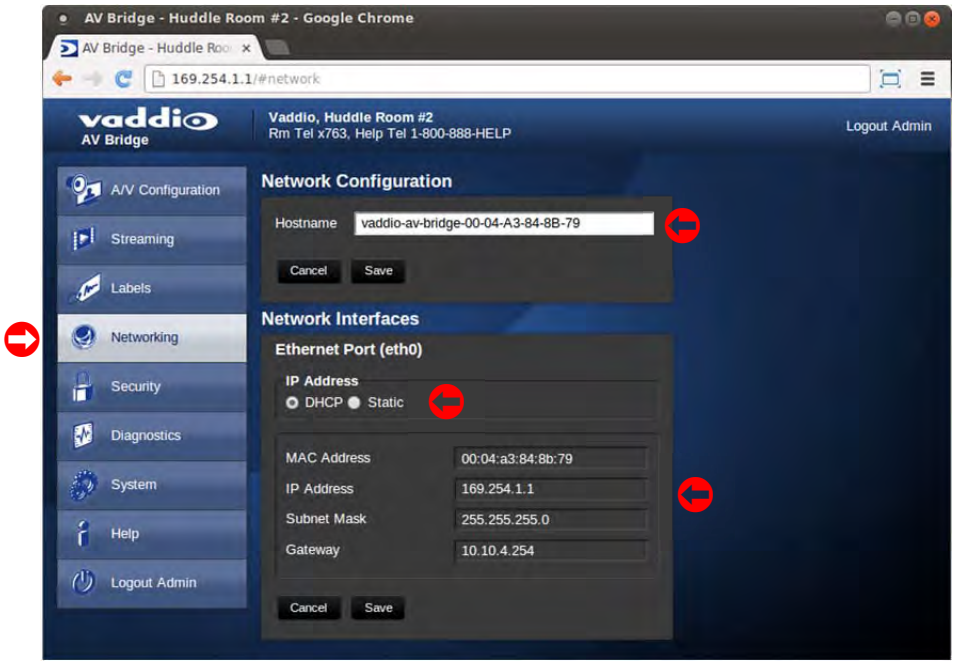
Screen Shot: Room Labels

The room Labels menu allows the admin to label the company name, room name, room phone and help phone on a per camera basis. The labels appear on every page at the top/middle of the page. Simply enter the room information and click Save.



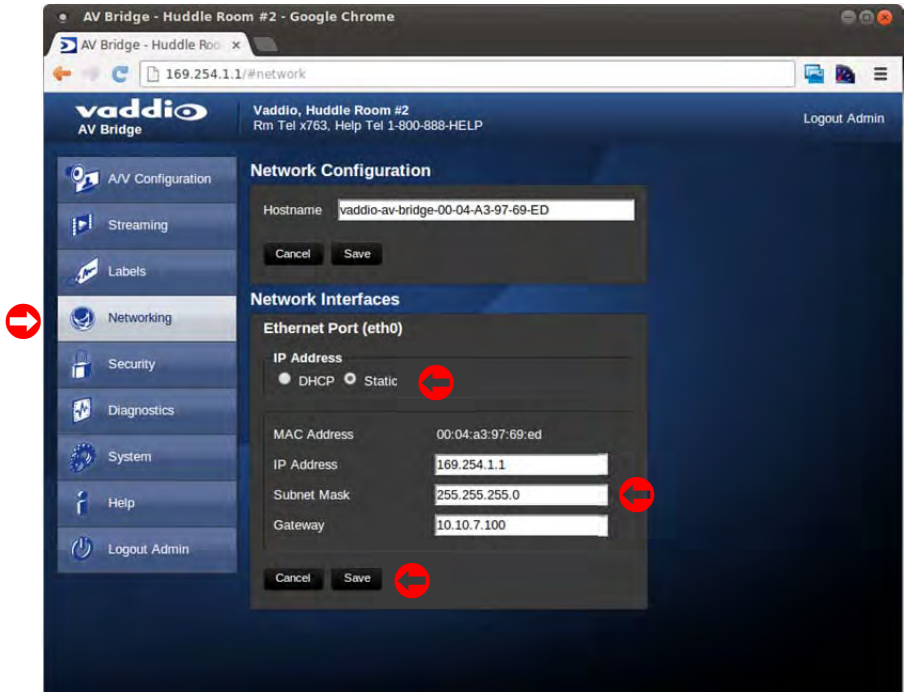
Screen Shot: Network Configuration - DHCP

The Networking page is used to configure the AV Bridge IP addressing. It supports either DHCP or Static IP address along with a Host Name. It also includes MAC address associated with the AV Bridge. All IP addressing is available on the front panel LCD as read only text.



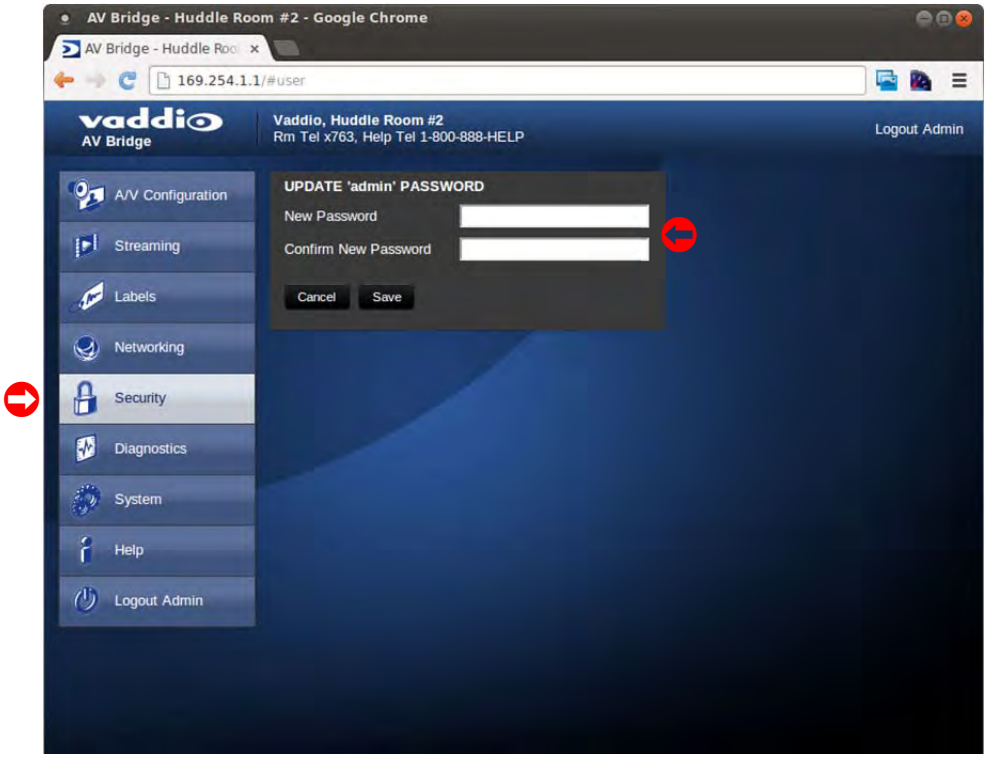
Screen Shot: Network Configuration - Static IP

To set up the Ethernet Port to Static IP address, click on Static and enter the IP address, the subnet mask and the gateway and click on save. Double check the data prior to clicking save.



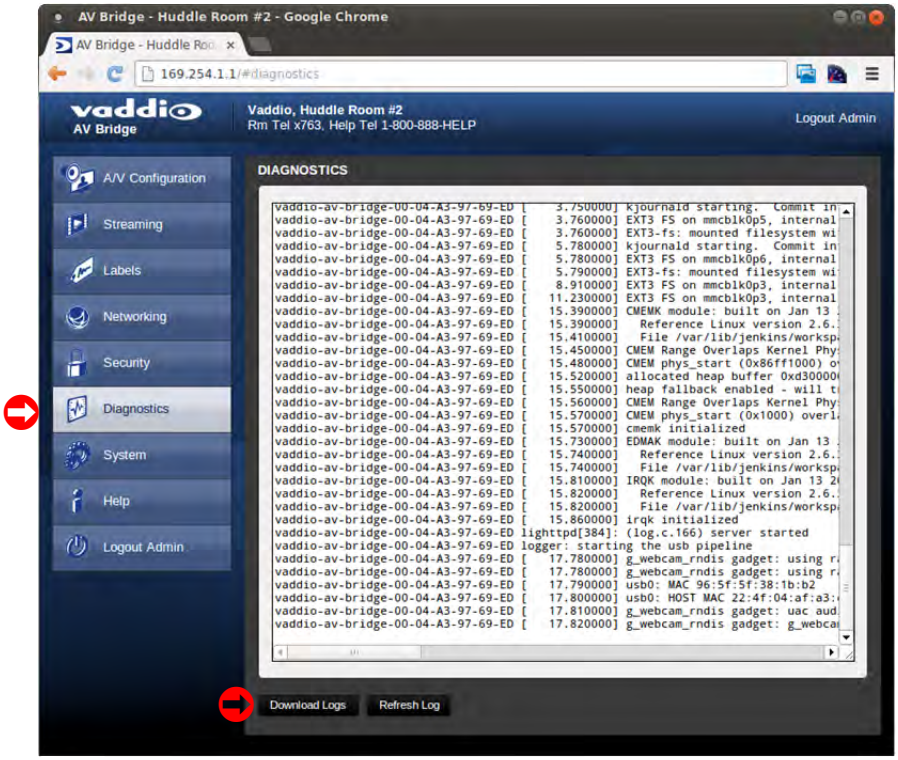
Screen Shot: Security

The admin account has a password for login security. The admin account will always require a password entry for login to the administrator pages on the AV Bridge. The AV Bridge ships with a factory default password of: 'password', but can be modified after initial login.



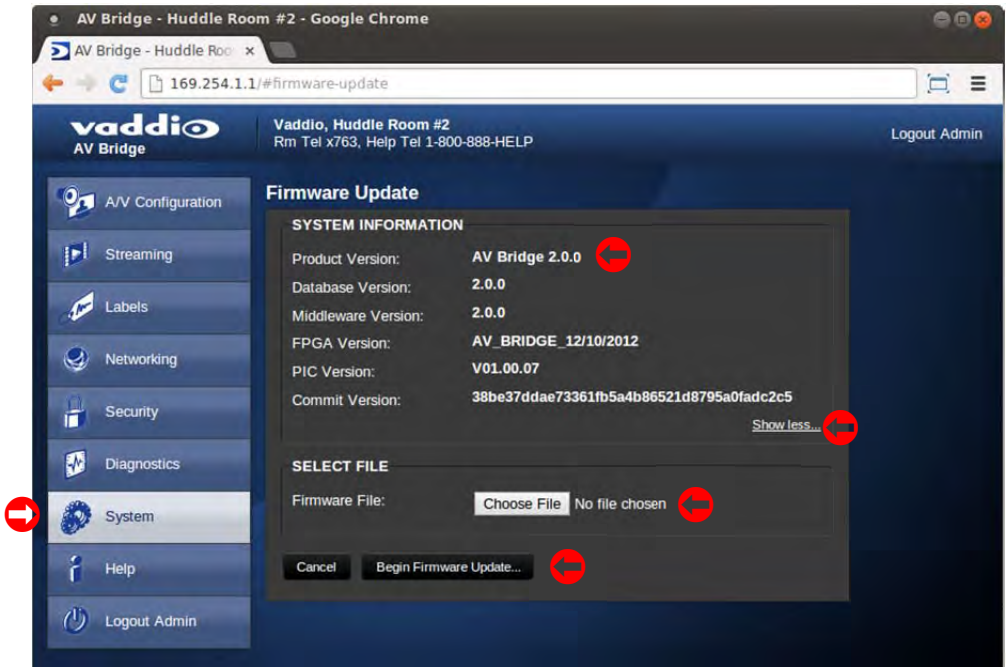
Screen Shot: Diagnostics

The diagnostics function within the AV Bridge is intended for advanced troubleshooting. It includes logging capabilities of key events and error reporting during normal operations. The internal logging function is setup as a revolving FIFO with estimated internal storage capabilities for up to one week. The administrator has the ability to clear the log or download the log to a local PC.



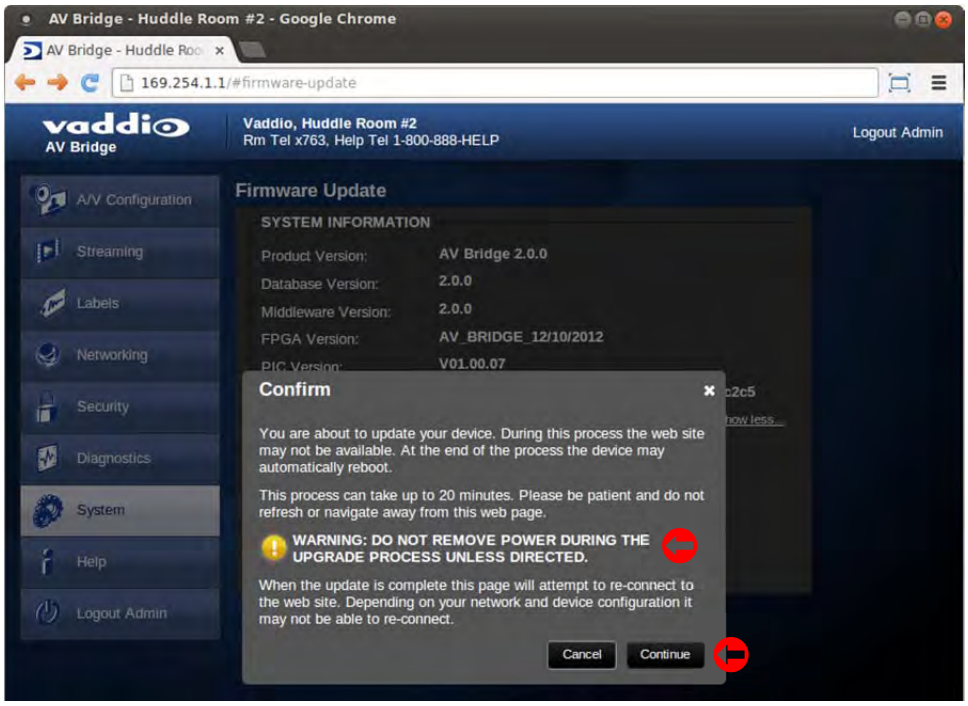
Screen Shot: System Menu

The system menu is intended to display the software versions and to provide for future firmware update operations. The administrator can select the new firmware file from local or network drive. The 'begin firmware update' button is actuated once desired firmware file is selected. The update process will include user notification of status. The "Show less" option closes down to the version detail only.

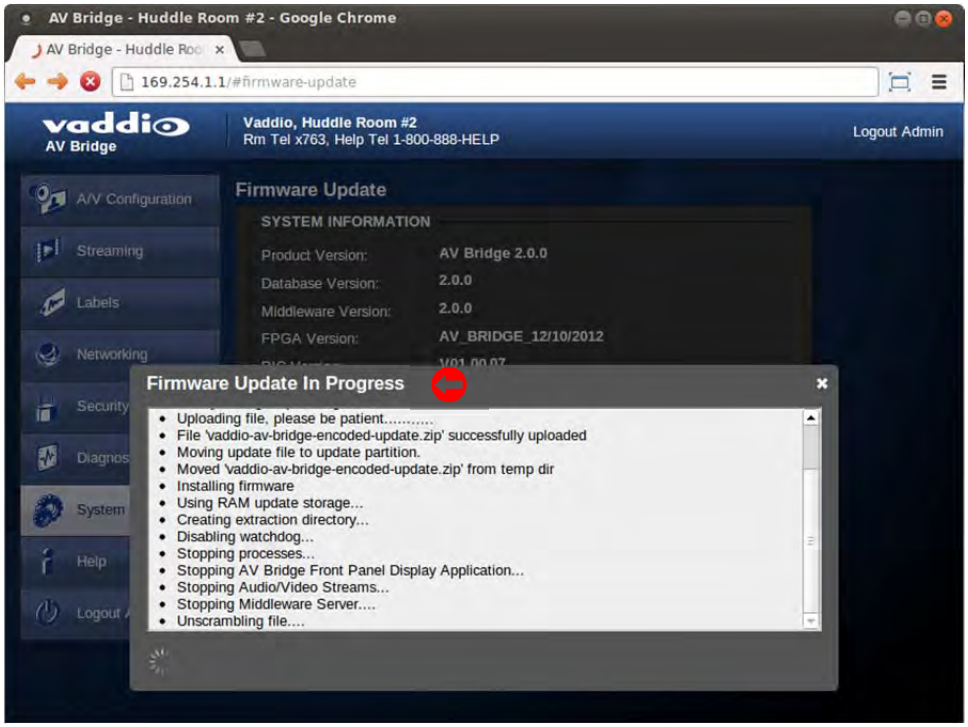


Screen Shot: System Confirmation Messages

The system will provide user notification and ask for confirmation to enter the firmware/software update process. After clicking on “Begin Firmware Update…” a confirmation pop-up and warning will be displayed.

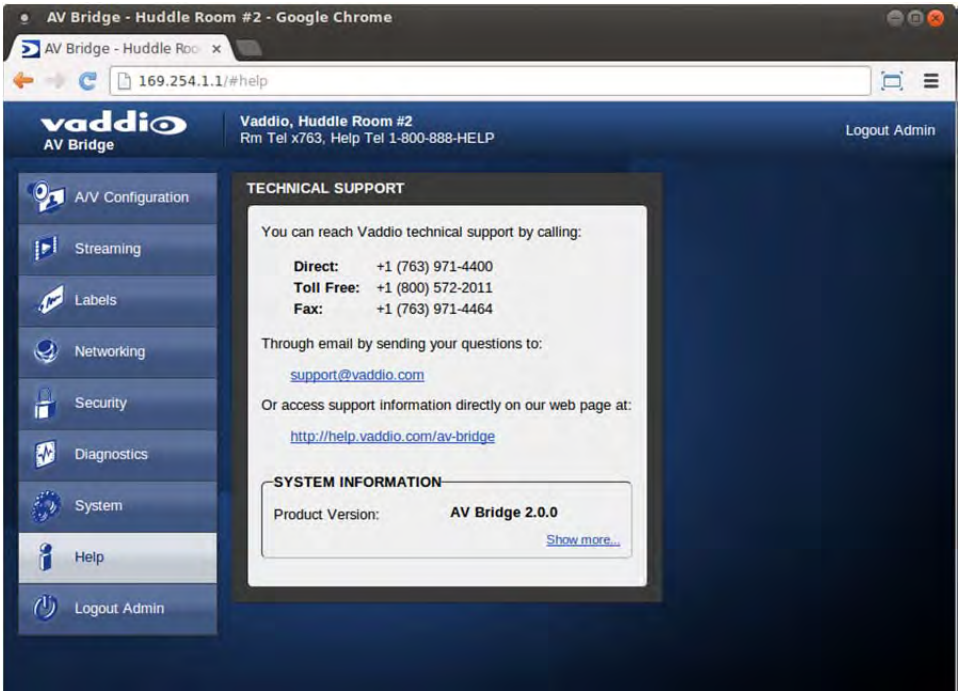

AV Bridge - Huddle Room #2 - Google Chrome
169.254.1.1/#firmware-update
Vaddio, Huddle Room #2
Rm Tel x763, Help Tel 1-800-888-HELP
Logout Admin
A/V Configuration
Streaming
Labels
Networking
Security
Diagnostics
System
Help
Logout Admin
Firmware Update
SYSTEM INFORMATION
Product Version: AV Bridge 2.0.0
Database Version: 2.0.0
Middleware Version: 2.0.0
FPGA Version: AV_BRIDGE_12/10/2012
Confirm
You are about to update your device. During this process the web site may not be available. At the end of the process the device may automatically reboot.
This process can take up to 20 minutes. Please be patient and do not refresh or navigate away from this web page.
WARNING: DO NOT REMOVE POWER DURING THE UPGRADE PROCESS UNLESS DIRECTED.
When the update is complete this page will attempt to re-connect to the web site. Depending on your network and device configuration it may not be able to re-connect.
Cancel
Continue

Screen Shot: Firmware Update in Progress



Screen Shot: Help Menu

The Help menu provides general information on the AV Bridge and is intended to assist the administrator in configuration and programming of the device. The Help also includes information on the current firmware release loaded on the device. Click on the support for product related documentation from the Vaddio website.



TECHNICAL SUPPORT NOTE:
Please work with your Network Administrator prior to calling Vaddio for technical support. Please have on-site network personnel initiate tech support calls with Vaddio only.

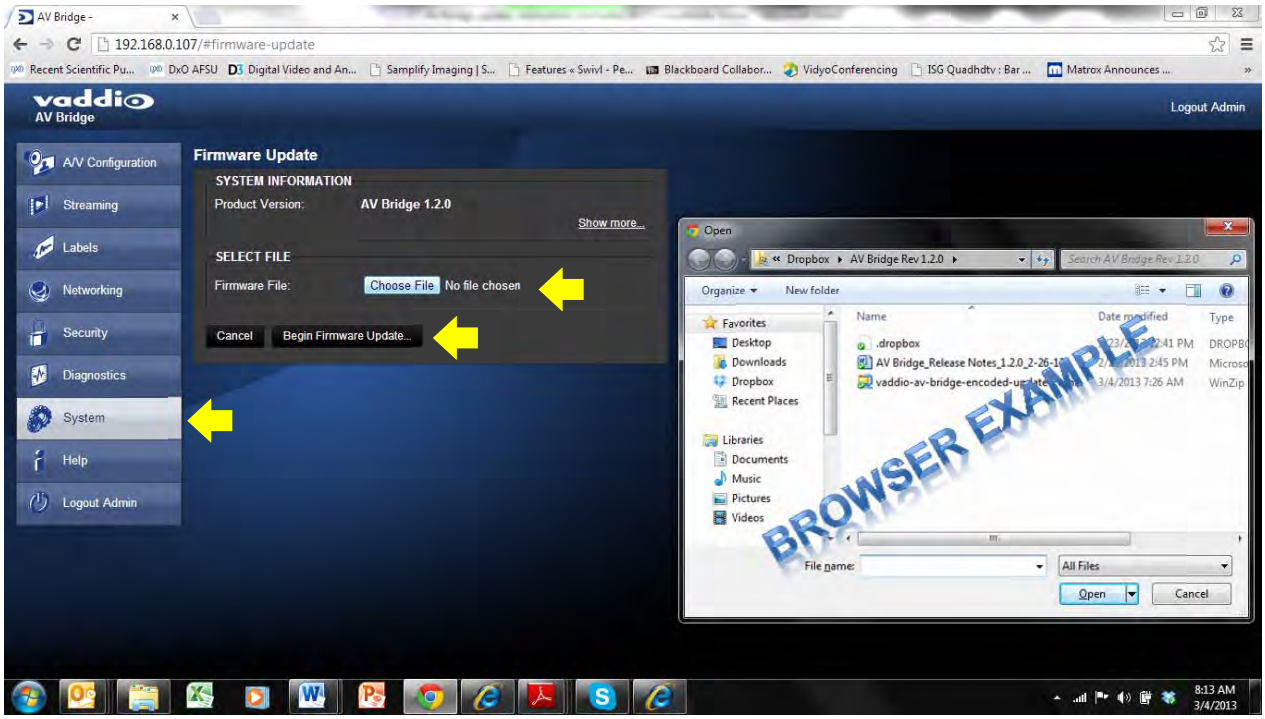
Logout:

The logout menu function exists from the administrator pages within the web server.

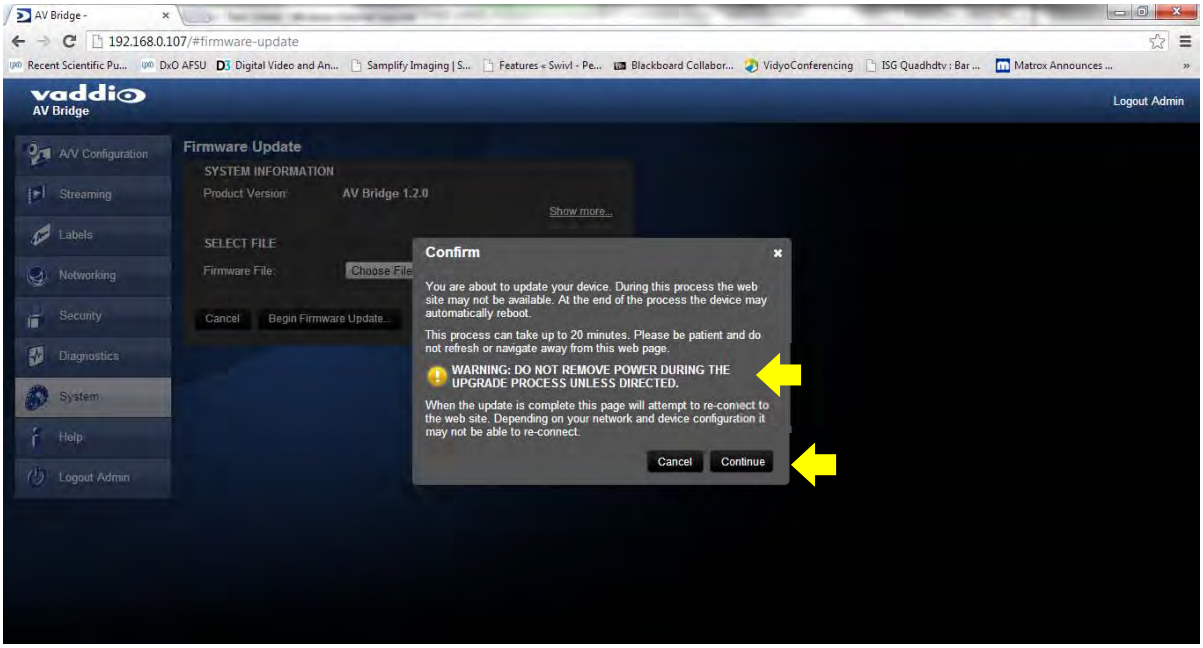
Updating AV Bridge Firmware

Release Date: July 10th, 2013
Version: 2.0.0

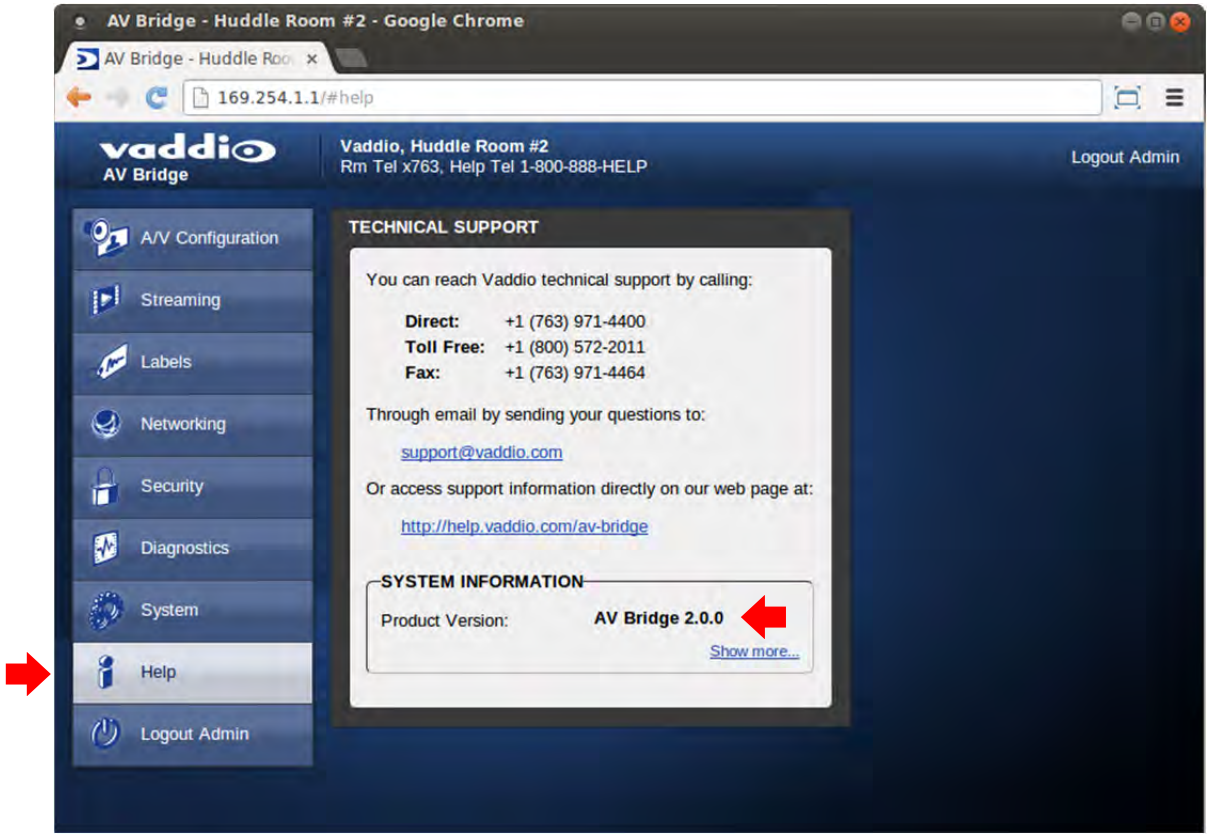
1) Download the AV Bridge firmware image from Vaddio Tech Center web site located at http://www.vaddio.com/tech-center.php . The file name is **AV-Bridge-web-update-complete-2.0.0.zip.** **DO NOT UNZIP FILE.** Instead, pleaseSave file to local drive.
2) Log-on to the AV Bridge administrator web pages. The IP address can be found on the front panel LCD of the AV Bridge. Default username is "admin" and default password is "password" (unless changed by the administrator).
3) Navigate to the Systems tab within the web pages. Press Choose File button and navigate to the AV Bridge firmware image stored in step 1. Once selected, choose "Begin Firmware Update".



4) After clicking on "Begin Firmware Update…" a confirmation pop-up and warning will be displayed. Please read and completely understand the pop-up warnings as it is easy to lose patience waiting for updates. Please read the warnings regarding the interruption of power below.


AV Bridge -
192.168.0.107/#firmware-update
vaddio
AV Bridge
Logout Admin
A/V Configuration
Streaming
Labels
Networking
Security
Diagnostics
System
Help
Logout Admin
Firmware Update
SYSTEM INFORMATION
Product Version:
AV Bridge 1.2.0
Show more...
SELECT FILE
Firmware File:
Choose File
Cancel
Begin Firmware Update...
Confirm
You are about to update your device. During this process the web site may not be available. At the end of the process the device may automatically reboot.
This process can take up to 20 minutes. Please be patient and do not refresh or navigate away from this web page.
WARNING: DO NOT REMOVE POWER DURING THE UPGRADE PROCESS UNLESS DIRECTED.
When the update is complete this page will attempt to re-connect to the web site. Depending on your network and device configuration it may not be able to re-connect.
Cancel
Continue

5) This update can take up to 15 minutes, the pop-up message window will identify progress of update and when it is completed. After the update is complete, the new version can be verified on the front panel LCD display or user can log on the web pages and navigate to Help page. The version is displayed under system information. It is also located under the System page.



Restoring Factory Defaults

The AV Bridge can be restored to factory defaults with the DIP Switches on the rear of the device. Process for defaulting AV Bridge to factory settings is:

- **Step 1:** Place all dip switches to the off position (down).

Warning: Current Settings will be erased.

- **Step 2:** Press Reset on the front panel of the AV Bridge. Device will reboot to factory settings.
- **Step 3:** Put all dip switches back up and proceed to set up the AV Bridge once again.

Warranty Information

(See Vaddio Warranty, Service and Return Policies posted on vaddio.com for complete details):

Hardware* Warranty: Two (2) year limited warranty on all parts and labor for Vaddio manufactured products. Vaddio warrants its manufactured products against defects in materials and workmanship for a period of two years from the day of purchase, to the original purchaser, if Vaddio receives notice of such defects during the warranty. Vaddio, at its option, will repair or replace products that prove to be defective. Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Exclusions: The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customers applied software or interfacing, unauthorized modifications or misuse, mishandling, operation outside the normal environmental specifications for the product, use of the incorrect power supply, modified power supply or improper site operation and maintenance. OEM products and products manufactured by other companies are excluded and are covered by the manufacturer's warranty.

Vaddio Customer Service: Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

Vaddio Technical Support: Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted through one of the following resources: e-mail support at support@vaddio.com or online at vaddio.com.

Return Material Authorization (RMA) Number: Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMA's are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge without exception.

Voided Warranty: The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, use of incorrect power supply, use of a modified power supply or unauthorized repair.

Shipping and Handling: Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. *Contact your carrier immediately***.**

Products not under Warranty: Payment arrangements are required before outbound shipment for all out of warranty products.

*Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Other General Information:

Care and Cleaning

Do not attempt to take this product apart at any time. There are no user-serviceable components inside.

- Do not spill liquids in the product
- Keep this device away from food and liquid, especially caviar.
- For smears or smudges on the product, wipe with a clean, soft cloth
- Use a lens cleaner on the lens….no hankies please
- Do not use any abrasive chemicals.

Operating and Storage Conditions:

Do not store or operate the device under the following conditions:

- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In swimming pools and in concrete mixers
- In inclement weather
- Dry environments with an excess of static discharge
- In a rain forest
- Under severe vibration

AV Bridge Compliance and CE Declaration of Conformity

Compliance testing was performed to the following regulations:

FCC 47 CFR Part 15, Subpart B/Oct. 2009	Class A
ICES-003, Issue 4: 2004	Class A
EN-55011:2007 + A2: 2007	Class A
EN 55022:2006 + A1: 2007	Class A
CISPR 22:1997	Class A
IEC 60950-1:2005 (Second Edition); Am 1:2009	Safety
EN 60950-1:2006+A11:2009+A1:2010+A12:2011	Safety
EMC Directive 2004/108/EC	Class A

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.

Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

Industry Canada Industrie Canada

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

European Compliance

This product has been evaluated for Electromagnetic Compatibility under the standards for Emissions and Immunity and meets the requirements for E4 environment. This product complies with Class A (E4 environment). In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:

EN-55011:2007 + A2:2007	Emissions
EN 55022:2006 + A1:2007	Conducted and Radiated Emissions
EN 61000-6-4:2007	Electromagnetic Compatibility
EN 61000-3-2:2006	Limits for Harmonic Content
EN 61000-3-3:2008	Limits for Voltage Fluctuations and Flicker
EN 61000-6-2:2005	Immunity for Industrial Environments
EN 55024:1998 + Amendments A1:2001 + A2: 2003	Immunity
EN 61000-4-2:2008	Electrostatic Discharge
EN 61000-4-3:2008	Radiated Immunity
EN 61000-4-4:2004 + Corrigendum 1:2006 + Corr. 2:2007	Electrical Fast Transients
EN 61000-4-5:2005	Surge Immunity
EN 61000-4-6:2008	Conducted Immunity
EN 61000-4-8:2009	Power Frequency Magnetic Field
EN 61000-4-11: Second Edition: 2004	Voltage Dips, Interrupts and Fluctuations
IEC 60950-1:2005 (Second Edition); Am 1:2009	Safety
EN 60950-1:2006+A11:2009+A1:2010+A12:2011	Safety

General Specifications

Part Numbers	AV Bridge 999-8210-000 - North America AV Bridge 999-8210-001 - International
Encoding - Release 2.0	Video Encoding: H.264 (IP) or MJPEG (USB) Resolution up to 1080/30 (IP) or 720P/30 (USB) Audio Encoding: AAC (IP) or PCM (USB) Variable Bit Rates
Supported Media Players	Real Media Player, QuickTime, VLC Media Player
Video Inputs & Supported Video Resolutions:	**Connectors:** HDMI, DE-15 (for YPbPr and RGBHV) and BNC-F for Std. Def. **HDMI: and YPbPr:** 1080p/60/59.94/50/30/25 frames/s, 720p/60/59.94/50 frames/s, 1080i/59.94/50 fields/sec **RGBHV** (VESA RESOLUTIONS): 1280 x 720@60Hz (16:9), 1280x768@60Hz (15:9)m, 1280x800@60Hz (16:10), 1360 x 768@60Hz (16:9), 1024 x 768@60Hz (4:3 centered in 16:9 frame) **DVI** (on HDMI connector using sRGB color space)**:** 1080p/60/59.94/50/frames/s**,** 720p/60/59.94/50Hz frames/s 1080i/59.94/50Hz, fields/sec, 1440 x 900@60Hz, 1360 x 768@60Hz, 1280 x 800@60 Hz, 1280 x 768@60Hz, 1280 x 720@60Hz, 1152 x 720@60Hz, 1024 x 768@60Hz **EDID Supported Resolutions:** 1080p/60/59.94/50/frames/s**,** 720p/60/59.94/50Hz frames/s, 1440 x 900@60Hz, 1360x768 @ 60Hz, 1280x800 @ 60 Hz **CVBS:** 480i/29.97Hz NTSC, 576i/25Hz PAL
Video Processing	Auto Scaling, Noise Filter, Deinterlacing
Analog Audio Input	Connector: 2-XLR (Balanced) & 2-RCA (unbalanced) Nominal Line Level +4dBu Balanced, -10dBV Unbalanced
Audio Processing	Compressor, EQ, Filter
USB 2.0 Interface	Connector Type-B Type: USB 2.0 Compliant Supported Drivers: USB Video Class, (UVC), USB Audio Class (UAC) No Custom Drivers Required
Network Interface	Connector: RJ-45 Type 10/100 Base-T
IP Streaming Supported	RTSP or HLS (Apple's HTTP Live Streaaming)
RS-232 Port	Connector: RJ-45
User Controls and Configuration	Front Panel LCD and Controls - High use functions such as presets & volume Embedded Web Server for Advanced configurations and administration Rear Panel Dip Switch (Set to factory Default
Power Supply	Connector: 5.5mm OD x 2.5mm ID Coaxial 18VDC, 2.75 Amp
Operating Temperature	32° to 104° F (0° to 40° C)
Power Consumption	Maximum: 36 Watts
Dimensions (WxHxD)	18.93" W x 1.72" H x 7.0" D
Weight	3.14159321 lbs. (1.425 kg)

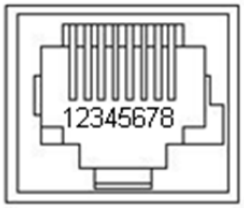
Appendix 1- Connectors Pin Outs

RS-232 on AV Bridge

Baud Rate: Selectable 9600, 19.2, or 38.4 kbps

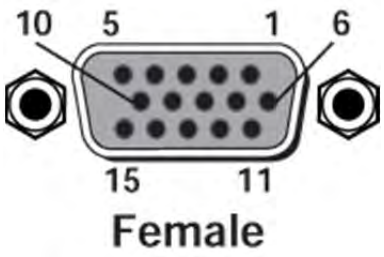
- **NOTE: The Default Rate is 38.4 kbps**

Pin #	RS-232 Port
1	Unused
2	Unused
3	Unused
4	Unused
5	Unused
6	GND
7	TXD
8	RXD



The DE-15 video port will accept either RGBHV or YPbPr video formats.

Pin	RGBHV	YPbPr
1	Red	Pr
2	Green	Y
3	Blue	Pb
4	-	-
5	N/C	N/C -
6	Red GND	Pr GND
7	Green GND	Y GND
8	Blue GND	Pb GND
9	No Pin	-
10	GND	GND
11	-	-
12	-	-
13	H-Sync	-
14	V-Sync	-
15	N/C	N/C



Appendix 2: Vaddio Serial Command API

The Vaddio Serial Command protocol is a high level text based command line interface supported on the RS-232 port or via telnet session on the AV Bridge.

Format:

The AV Bridge command application protocol interface is intended to allow external device such as AMX and Crestron to control the device. The protocol is based upon ASCII format following the VT100 terminal emulation standard and utilizes an intuitive textual command nomenclature for ease of use. The API is supported on both the RS-232 and Ethernet physical layers. All ASCII characters will be **echoed** to terminal program and appended with VT100 string -**ESC[J** (HEX- 1B 5B 4A). Vaddio Command lines are terminated on carriage return. After the carriage return, the VT100 appends with –**ESC[J** .
(Note that most terminal programs automatically strip the VT100 string.)

General format usage follows a get/set structure. Usage examples for each type are:

Set Example:

COMMAND: > audio mute on
RESPONSE: >OK

Get Example:

COMMAND: > audio mute get
RESPONSE: > audio mute on

Syntax Error Example:

COMMAND: > audio mute on
RESPONSE: > Syntax error: Unknown or incomplete command

Additional programming controls associated with the terminal protocol includes:

- **CTRL 5**- Clears the current serial buffer on the device.

RS-232 Format: The RS-232 command format is based communication interface of:

- Start Bit: 1
- Stop Bit: 1
- Data: 8
- Polarity: None
- Flow Control: None
- Baud Rate: User selectable between 9600, 19,200, 38,400 **(Default is 38,400 bps)**

Telnet Format: The AV Bridge also supports the API over a network connection with a Telnet sessions. Telnet sessions will require access verification and utilizes the same username and password associated with the Administrator account on the embedded web server. The default Telnet Port is 23. Command lines are terminated with carriage return. A complete list of API commands supported by the AV Bridge is described in the next section heretofore.

Image: Scintillating example of simulated Telnet session

Command List:

Audio Input

- **NAME**

audio input - Gets or sets the current audio input source

- **SYNOPSIS**

audio *input* {get|balanced|unbalanced}

- **DESCRIPTION**

Method used to get or set the current **audio** *input* source

- **OPTIONS**

get Get the current **audio** *input*
balanced
Set **audio** *input* to balanced
unbalanced
Set **audio** *input* to unbalanced

- **EXAMPLES**

audio *input* get
*input***:** balanced
Returns the current **audio** *input*
---
audio *input* unbalanced
OK
Sets the **audio** *input* to unbalanced
-----
audio *input* balanced
OK
Sets the **audio** *input* to balanced

Audio Mute

- **NAME**

audio mute - Gets or sets the current audio mute

- **SYNOPSIS**

audio *mute* {get|on|off|toggle}

- **DESCRIPTION**

Method used to get or set the current **audio** *mute*

- **OPTIONS**

get Get the current **audio** *mute*
on Set **audio** *mute* to on
off Set **audio** *mute* to off
toggle Toggle the **audio** *mute*

- **EXAMPLES**

audio *mute* get
*mute***:** off
Returns the current **audio** *mute*
---
audio *mute* on
OK
Turns the **audio** *mute* on
---
audio *mute* off
OK
Turns the **audio** *mute* off

Audio Volume

- **NAME**

audio volume - Gets or sets the current audio volume

- **SYNOPSIS**

audio *volume* {get|up|down|set <level>}

- **DESCRIPTION**

Method used to get or set the current **audio** *volume*

- **OPTIONS**

get Get the current **audio** *volume*
up Increment **audio** *volume* one step
down Decrement **audio** *volume* one step
set Set the **audio** *volume* level. The level must be in the range from 0-10 inclusive

- **EXAMPLES**

audio *volume* get
*volume***:**
Returns the current **audio** *volume*
---
audio *volume* set 6
OK
Sets the **audio** *volume* level to 6
---
audio *volume* set 5
OK
Sets the **audio** *volume* level to 5

Audio

- **NAME**

audio - Gets or sets the current audio settings

- **SYNOPSIS**

audio {input {get|balanced|unbalanced} | *mute* **{get|on|off|toggle} |**
volume {get|up|down|set <level>}}

- **DESCRIPTION**

Method used to get or set the current **audio** settings

- **OPTIONS**

input Get or set the current **audio** input source
mute Get or set the current **audio** *mute*
volume Get or set the current **audio** *volume*

- **EXAMPLES**

audio input unbalanced
Sets the **audio** input to unbalanced
---
audio *mute* get
*mute***:** off
Returns the current **audio** *mute*
---
audio *volume* up
Increment the **audio** *volume* by one step

Exit

- **NAME**

exit - ends the current API command session

- **SYNOPSIS**

exit

- **DESCRIPTION**

Ends the current API command session. If the session is over telnet, the session is ended and the socket is closed. If the session is over serial, a new session is started.

Help

- **NAME**

help - display an overview of the CLI syntax

- **SYNOPSIS**

help

- **DESCRIPTION**

Display an overview of the command line syntax

History

- **NAME**

history - command history

- **SYNOPSIS**

history [*limit*]

- **DESCRIPTION**

Since many of the programs read user input a line at a time, the command **history** is used to keep track of these lines and also recall historic information

- **HISTORY NAVIGATION**

The command **history** can be navigated using the up and down arrow keys. The up arrow will move up a single entry in the command **history** while the down arrow moves down in the command **history**.

- **HISTORY EXPANSION**

The command **history** supports the expansion functionality from which previous commands can be recalled from within a single session. History expansion is performed immediately after a complete line is read.
Listed below are examples of **history** expansion:
*** !!** Subsitute the the last command line.
*** !N** Substitute the Nth command line (absolute as per '**history**' command)
*** !-N** Substitute the command line entered N lines before (relative)

- **EXAMPLES**

history
Displays the current command buffer
history 5
Sets the **history** command buffer to remember the last 5 unique entries

Network Ping

- **NAME**

network ping - send ICMP ECHO_REQUEST to network hosts

- **SYNOPSIS**

network *ping* [*count* <*count*>] [*size* <*size*>] <destination-ip>

- **DESCRIPTION**

Use the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway. ECHO_REQUEST datagrams have an IP and ICMP header, followed by a struct timeval and then an arbitrary number of pad bytes used to fill out the packet.

- **OPTIONS**

count Stop after sending *count* ECHO_REQUEST packets. With deadline option, *ping* waits for *count* ECHO_REPLY packets, until the timeout expires. The default is 5.
destination
The destination IP address where the ECHO_REQUESTS are sent
size The data *size* of the ICMP packet to send. The default is 56 bytes

- **EXAMPLES**

network *ping* 192.168.1.1
Attempt to send 5 ICMP ECHO_REQUESTs with data *size* 56 to the host at 192.168.1.1
network *ping count* 10 *size* 100 192.168.1.1

Attempt to send 10 ICMP ECHO_REQUESTs with data *size* of 100 to the host at 192.168.1.1

Network Settings

- **NAME**

network settings - get current network settings

- **SYNOPSIS**

network *settings* {get}

- **DESCRIPTION**

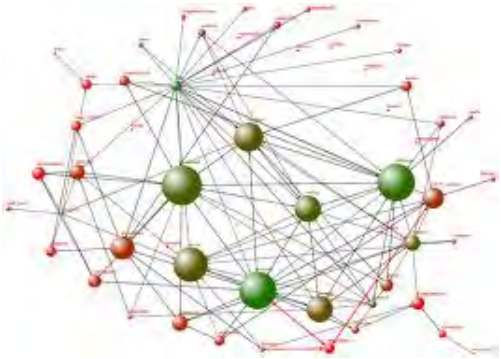
Method used to get the current **network** *settings* of the device

- **OPTIONS**

get Get the current **network** *settings* for the machine

- **EXAMPLES**

network *settings* get
MAC Address:
00:04:a3:85:0a:ee
IP Address:
10.10.8.116
Netmask:
255.255.255.0
Gateway:
10.10.8.100



Returns the current **network** *settings* for mac addres, ip address, netmask, and gateway

Network

- **NAME**

network - Gets the current network settings or pings an IP address

- **SYNOPSIS**

network {settings *get* | *ping* [*count* <*count*>] [*size* <*size*>] <destination-ip>}

- **DESCRIPTION**

Method used to *get* the current **network** settings or check **network**

- **OPTIONS**

settings
Get the current **network** settings
ping Send ICMP ECHO_REQUEST to **network** host

- **EXAMPLES**

network settings *get*
Gets the current **network** settings
---
network *ping count* 1 10.10.10.100

Pings 10.10.10.100 once and displays results

Serial

- **NAME**

serial - Sets or gets the current serial settings

- **SYNOPSIS**

serial {get|9600|19200|38400}

- **DESCRIPTION**

The **serial** command is used to get or set the **serial** baud rate

- **OPTIONS**

get Returns the **serial** speed
9600 Sets the **serial** baud rate to 9600
19200 Sets the **serial** baud rate to 19200
38400 Sets the **serial** baud rate to 38400

- **EXAMPLES**

serial get
Gets the current **serial** baud rate
serial 38400
Sets the external **serial** baud rate to 38400

Streaming Mode

- **NAME**

streaming mode - Gets or sets the current streaming mode

- **SYNOPSIS**

streaming *mode* {get|usb}

- **DESCRIPTION**

Method used to get or set the current **streaming** settings

- **OPTIONS**

get Get the current **streaming** *mode*
usb Set the current **streaming** *mode* to USB

- **EXAMPLES**

streaming *mode* get
*mode***:** usb
Returns the current **streaming** *mode* ----
streaming *mode* usb
OK
Sets the **streaming** *mode* to usb

Streaming Quality

- **NAME**

streaming quality - Gets or sets the current streaming quality

- **SYNOPSIS**

streaming *quality* {get|low|standard|high}

- **DESCRIPTION**

Method used to get or set the current **streaming** *quality*

- **OPTIONS**

get Get the current **streaming** *quality*
low Set video *quality* to low
standard
Set video *quality* to standard
high Set video *quality* to high

- **EXAMPLES**

streaming *quality* get
*quality***:**
low
Returns the current **streaming** *quality* ----
streaming *quality* standard
OK
Sets the **streaming** *quality* to standard

Streaming Resolution

- **NAME**

streaming resolution - Gets or sets the current streaming resolution

- **SYNOPSIS**

streaming *resolution* {get|1080p|720p|4cif|480p|cif}

- **DESCRIPTION**

Method used to get or set the current **streaming** *resolution*

- **OPTIONS**

get Get the current **streaming** *resolution*
1080p Set video *resolution* to 1080p
720p Set video *resolution* to 720p
4cif Set video *resolution* to 4cif
480p Set video *resolution* to 480p
cif Set video *resolution* to cif

- **EXAMPLES**

streaming *resolution* get
*resolution***:**
720p
Returns the current **streaming** *resolution* ----
streaming *resolution* 720p
OK
Sets the **streaming** *resolution* to 720p

Streaming

- **NAME**

streaming - Gets or sets the current streaming settings

- **SYNOPSIS**

streaming {mode {get|usb|ethernet} | *resolution* **{get|1080p|720p|4cif|480p|cif} |** *quality* {get|low|standard|high}}

- **DESCRIPTION**

Method used to get or set the current **streaming** settings

- **OPTIONS**

mode Get or set the current **streaming** mode
resolution
Get or set the current **streaming** video *resolution*
quality Get or set the current **streaming** video frame rate and bit rate

- **EXAMPLES**

streaming mode get
mode: usb
Returns the current **streaming** mode
---
streaming mode ethernet
Sets the **streaming** mode to Ethernet
---
streaming *quality* standard
Sets the **streaming** *quality* to standard
---
streaming *resolution* 720p
Sets the **streaming** *resolution* to 720p

Version

- **NAME**

version - display the system version information

- **SYNOPSIS**

version

- **DESCRIPTION**

Display an overview of the command line syntax

- **EXAMPLES**

Version
Returns the current software **version**

Video Input

- **NAME**

video input - Gets or sets the current video input source

- **SYNOPSIS**

video *input* {get|auto|hdmi|rgbhv|sd|ypbpr}

- **DESCRIPTION**

Method used to get or set the current **video** *input* source

- **OPTIONS**

get Get the current **video** *input*
auto Sets the **video** *input* to be automatically selected
hdmi Sets the **video** *input* to be hdmi
rgbhv Sets the **video** *input* to be rgbhv
sd Sets the **video** *input* to be sd
ypbpr Sets the **video** *input* to be ypbpr

- **EXAMPLES**

video *input* get
*input***:** hdmi
Returns the current **video** *input*
---
video *input* ypbpr
OK
Sets the **video** *input* to ypbpr
---
video *input* hdmi
OK
Sets the **video** *input* to hdmi

Video Mute

- **NAME**

video mute - Gets or sets the current video mute

- **SYNOPSIS**

video *mute* {get|on|off|toggle}

- **DESCRIPTION**

Method used to get or set the current **video** *mute*

- **OPTIONS**

get Get the current **video** *mute*
on Set **video** *mute* to on
off Set **video** *mute* to off
toggle Toggle the **video** *mute*

- **EXAMPLES**

video *mute* get
*mute***:** off
Returns the current **video** *mute*
---
video *mute* on
OK
Turns the **video** *mute* on
---
video *mute* off
OK
Turns the **video** *mute* off

Video

- **NAME**

video - Gets or sets the current video settings

- **SYNOPSIS**

video {input {get|hdmi|rgbhv|sd|ypbpr} | *mute* {get|on|off|toggle}}

- **DESCRIPTION**

Method used to get or set the current **video** settings

- **OPTIONS**

input Get/set the current **video** input source
mute Get/set the current **video** *mute*

- **EXAMPLES**

video input hdmi
Sets the **video** input to hdmi
---
video *mute* get
*mute***:** off
Returns the current **video** *mute*

Release Notes - AV Bridge 2.0.0

Component	Version
Database	2.0.0
Middleware	2.0.0
FPGA	AV_Bridge-04/18/2013
PIC	V01.00.07

New Features & Functions

RTSP or IP Streaming: Release 2.0 includes the Real Time Streaming Protocol (RTSP) capabilities for IP Streaming of both the audio and video input source. The IP streaming is configurable within the Web Server. Device is configured for either USB or IP streaming mode (not simultaneous).
Improved USB Video Quality: Increased color space range for USB streaming provides a more vivid image. Improved capture resolution on the HDMI and RGBHV inputs create a sharper image.
Audio Delay Function: An audio delay function has been added to the AV Bridge. The audio delay allows users to set an audio delay from 0 to 450msec in 30msec increments for time alignment with up steam video frame delays.
Serial Command API: Vaddio Serial Command API has been updated adding new commands for Streaming functions.

Fixed Issues

USB Audio/Video Sync: Corrected the problem of USB audio lagging the video stream.

Known Issues

IP Streaming: Video quality of IP stream will degrade with more than one media players connected to the stream. This is a processor limitation on the streaming engine within the camera.
RTSP Audio & Video Sync: RTSP audio and video streams may become suspended after approximately 4 to 6 hours within a session. This can be corrected by restarting the stream in the media player.
RTSP Port: RTSP port can be assigned as 554 or between the ranges of 1024 to 65535. Other ports are reserved for internal purposes.

Interoperability Testing & Findings

The following interoperability testing was performed for this release. A detailed list of all interoperability findings can be found in the EasyUSB Tools Interoperability FAQ document.

Table: AV Bridge UC Client Interoperability Testing

Cisco Jabber	4.4	None	
Web Ex	WBS 28.7	None	Must have WebEx Client Version 28.7 to work with Vaddio USB Video Products. AV Bridge color space should be set to 4:2:0
Skype	6.0	720p only supported on Skype Certified Camera	Workaround for HD by downloading shareware to force HD.
Adobe Connect	9.0.1	UVC Conflict with some built in Laptop Cameras	Improved video performance with Release 1.2.0
Microsoft Lync	4.0.7	None	Improved video performance with Release 1.2.0
Gotomeeting (Citrix)	5.4	None	Improved video performance with Release 1.2.0
Vidyo Desktop	2.2.1	None	Certification in process with VidyoRoom systems
Polycom M100	1.0.4	None	
LifeSize ClearSea	8.2.0	None	
Google Plus	N/A	None	
Panopto	4.2.5602	None	
Quick Time Media Player	10.2	None	
VLC Media Player	2.0.4	None	
Real Player	16.0	None	

Table: AV Bridge IP Streaming Interoperability Testing

Media Player	Test Version	Major Findings	Comment
QuickTime Media Player	7.7 (WIN) 10.2 (MAC)	Direct X plugins may need to be disabled on Windows in order to accept the RTSP stream. **Note:** QuickTime does not support PCM audio.	N/C
Real Player	16.0	Real Player uses QuickTime for audio decode and launches small video window.	N/C
VLC Media Player	2.0.X	None	N/C
WOWZA Media Server	5.4	None	Tested as push stream to WOWZA via RTSP.

Windows Media Player: Windows Media Player is not compatible with standard RTSP streams. It will not play IP streams originating from AV Bridge.

USB Audio Support with UC Clients: The majority of the Unified Communication (UC) software clients only support a mono audio record device. The AV Bridge does support Stereo USB audio. However, the UC clients will only consume the Left audio channel of the AV Bridge by default. If no microphone audio is being seen by the UC software client please check that an input source is available on the Left Channel (Balanced or Unbalance) on the AV Bridge.

Windows XP: User may experience some limited PC controls (volume and mute) when using Microsoft XP SP2 and below. Specifically, the volume sliders on PC may have limited range. This is due to Microsoft change in USB device support for audio volume controls.

Backward Compatibility:

- The software does not allow for downgrading units back to Version 1.2.0.

Previous Release Notes(1.2.0):

Component	Version
Database	1.2.0
Middleware	1.2.0
FPGA	AV_Bridge_12/10/2012
PIC	V01.00.07

WebEx Compatibility- The video compatibility problem between AV Bridge and WebEx has been resolved with a new software release of the WebEx client. Version WBS 28.7 and above is compatible with Vaddio USB devices. AV Bridge color spacing must be configured for 4:2:0 for compatibility with WebEx (Default Setting).
Improved Interoperability with Various UC software Clients- Additional USB video resolution support has been added to the UVC endpoint to improve video quality for some UC soft clients that use standard definition video resolution. Supported UVC resolutions include:

Format	Resolution	Frame Rate	Aspect Ratio
MJPEG	1280X720	15/30	16:9
	960X544	15/30	16:9
	704X576	15/30	4:3
	640X480	15/30	4:3
	640X360	15/30	16:9
	424X240	15/30	4:3
	352X240	15/30	4:3
	320X240	15/30	4:3
	320X180	15/30	16:9

USB Color Space Option: A user configurable option for setting video color space as 4:2:0 or 4:2:2 have been added to the Web Pages. The 4:2:0 color space will reduce USB bandwidth by up to 25% and may actually improve video quality with some UC soft clients.

New RGBHV Supported Resolutions- Additional RGBHV resolutions support has been added to the video input channel providing additional interoperability support with multiple PC video cards. Supported resolutions include:

- 1360 x 768 @ 60Hz - WXGA
- 1280 x 800 @ 60Hz - WXGA
- 1280 x 768 @ 60Hz - WXGA
- 1280 x 720 @ 60Hz - WXGA
- 1024 x 768 @ 60Hz - XGA

New DVI Resolutions (on HDMI Input using sRGB color space) Support:

- 1360 x 768 @ 60Hz - WXGA
- 1280 x 800 @ 60 Hz - WXGA
- 1280 x 768 @ 60Hz - WXGA
- 1280 x 720 @ 60Hz - WXGA
- 1024 x 768 @ 60Hz - XGA

HDMI EDID Forwarding- EDID forwarding has been added to the HDMI video input. Supported resolutions will include:

- 1080p/60/59.94/50/frames/s
- 720p/60/59.94/50Hz frames/s
- 1440 x 900@60Hz
- 1360x768 @ 60Hz
- 1280x800 @ 60 Hz

Firmware Update Function: The firmware update process has been modified allowing all internal components to be updated via the Web Pages.
Serial Command API: Vaddio Serial Command API has been updated adding new commands for Streaming functions.

Fixed Issues:

VU Meter Operation: The front panel VU Meter has scale has been improved providing a relative audio level of the input. This modification also included a hardware change to the meter circuit on the AV Bridge.
RGBHV Alignment: The automatic video alignment function has been improved to support most PC video display cards.
Audio/Video Synchronization: The Audio and Video synchronization associated with the AV Bridge processing was improved.

Interoperability Testing & Findings:

The following interoperability testing was performed for this release. A detailed list of all interoperability findings can be found in the EasyUSB Tools Interoperability FAQ document.

AV Bridge UC Client Interoperability Testing

Software Client	Operating System	Issues
Cisco Jabber	Win 7 & Mac OS 10.X	None
Skype	Win 7 & Mac OS 10.7	None
Adobe Connect 8	Win 7 & Mac OS 10.X	Potential UVC conflict with two generic video cameras connected to PC (i.e. built-in laptop camera).
Microsoft Lync	Win 7	None
Vidyo Desktop	Win 7 & Mac OS 10.X	None
Polycom M100	Win 7	None
LifeSize ClearSea	Win 7	None
Google Plus	Win 7	None
Gotomeeting (Citrix)	Win 7 & Mac OS 10.X	None
WebEx (WBS28.7)	Win 7 & Mac OS 10.X	Must use WebEx WBS 28.7 and above for compatibility.
Panopto	Win 7	None

- **USB Audio Support with UC Clients**: The majority of the Unified Communication (UC) software clients only support a mono audio record device. The AV Bridge does support Stereo USB audio. However, the UC clients will only consume the Left audio channel of the AV Bridge by default. If no microphone audio is being seen by the UC software client please check that an input source is available on the Left Channel (Balanced or Unbalance) on the AV Bridge.

- **Windows XP**: User may experience some limited PC controls (volume and mute) when using Microsoft XP SP2 and below. Specifically, the volume sliders on PC may have limited range. This is due to Microsoft change in USB device support for audio volume controls.

Backward Compatibility:
Software Release cannot be downgraded once 1.2.0 is loaded.

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